

is one-third of its length distant from the tip: the basal is well developed, and nearly equal to the first premolar. Second and first premolars nearly equal; fourth larger than third; fifth very small, wedged between the molar and premolar, its crown oval, with a faint transverse line of coloration. All the other teeth are tipped with bright chestnut, those of the mandible most extensively, especially the incisors, in which the whole superior border is colored. First superior molar scarcely larger than second and third. Inferior incisors with indistinct lobes. First premolar small, very oblique; second larger, little oblique, bicuspid. First molar largest. Muzzle slender, depressed, probably less elongate than in *N. navigator*. Distance between the ocular fissures contained once and a half times in the distance between the same and end of the muzzle. A styloid angular process of the mandibulum. The whiskers are long—the anterior directed downward and forward, the posterior extending as far as the margin of the helix of the ear. The auricle is directed backwards and closely appressed to the head: the length from antitragus to border of helix is equal to the width between the centres of the orbits. The superior and inferior portions of the helix are closely folded longitudinally upon it, the inferior fold most extensive. The antitragus is large, its anterior border folded backward, the whole closely covering the meatus. Antihelix vertical, short, folded backwards. The posterior, and external anterior faces of the helix are covered with long dark hairs like those of the body; the other portions of the auricle are heavily fringed with the same. Fur, upon the middle of the side about three lines long. Tail obtusely tetragonal, as long as the head and body. The hairs are stiff, flattened, equal; they form a pencil at the tip. A close fringe extends along the inner and outer borders of the palms and soles and exterior digits; a slighter fringe occurs on the border of the median digits. The claws are acute, short. The anterior foot is contained one and two-thirds times in the length of the posterior. In the latter there is a depressed tubercle at the base of the internal digit, one at the base of the second, and one at the base of the fissure between the fourth and last. There is a compressed tubercle at the base of the third digit, and two on the metatarsus. The arrangement of tubercles on the palm is similar, except that they are more depressed, and close together. Length of head 1 in. $2\frac{1}{2}$ lin., of body 1 in. 6 l., of tail 1 in. 9 l., of fore foot $4\frac{1}{2}$ l., of hind foot $8\frac{3}{4}$ l.

The general color is black, with a tinge of brown; this tinge is more apparent upon the abdomen, and most upon the posterior gular region; anterior gular region and chin nearly white, lightest anteriorly. Tail unicolor.

On *Lacerta echinata* and *Tiliqua dura*.

BY E. D. COPE.

Lacerta (*Zootoca*) *echinata*.

Scales nearly granular on the sides and nape of the neck. They increase in size posteriorly, becoming rhombic, and having strong keels parallel with the median line. Abdominal plates in six series, transverse, except the posterior portion of the median two series, which are longitudinal. Gular scales in cross series, coarsely granular, the posterior largely. Eight plates on the antepectoral fold, preceded by six or seven smaller. Four series of brachial plates, two anterior; the superior of these is the largest of all. One antero-internal antebrachial series: the external and posterior scales of the antibrachium are keeled, as are also those of the tibia and femur. Anterior femoral series five, the second (from above) largest. Femoral pores fourteen, large, in the posterior parts of the plates. Two tibial rows, external larger, composed of six plates, of which the median three are nearly equal. Marginal preanals, one very large, transverse, two small on each side. The former is

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bordered anteriorly by a curved series of six small plates. Plates of the tail strongly keeled above and below: the margins and keels of those of the superior halves of the whorls from the tenth (counting from vent) to the twenty-sixth greatly produced, forming flattened trihedral spines. Temple with flattened, slightly keeled scales. Superior labials eight, last minute, eye separated from the large sixth by a chain of small suborbitals. Frenal and pre-frenal well developed; prenasals larger than postnasals, in contact medially. Internal longer than broad; frontonasals large, in contact; frontal more than half as broad as long; frontoparietals longer than broad, in contact with a truncate cuneiform interparietal. Parietals large, as long as the anterior four upper labials. An elongate semicircular inter-post parietal. Inferior eyelid scaled. Tympanic meatus, large, vertical. Inferior labials four, narrow; infralabials four, large, two anterior in contact with those of the other ramus. Teeth as in other species tricuspid. Length from symphysis to antepectoral fold 1 in. 6 l., from fold to vent, 2 in. 7 lin., from vent to end of tail 10 in. 6 l. Anterior extremity 1 in. 6 l.; posterior, 1 in. 11 lin. Above bluish-green with about fifteen blackish cross bands; those upon the nape and rump are narrow, the others broad, dark bordered. Beneath yellowish. Head shaded with yellowish.

Hab.—West Africa, Museum Smithsonian, (No. 5995.)

The spinous swelling upon the tail of this species is its most characteristic peculiarity.

Tiliqua dura.

Body stout, tetragonal; sides vertical. Tail tetragonal at base. Head distinct, muzzle narrow, with vertical sides. Rostral plate covering the tip of the muzzle like a cup, its posterior border straight. Nostril in the middle of a subquadrangular nasal. A pair of large supranasals, longer than broad, extensively in contact medially: an elongate frontonasal connects the supranasal with the supraocular on each side; it is separated from its fellow by a shorter pentagonal internasal. One or two minute freno-nasals; an elongate freno-ocular bounding the second and third superior labial. Vertical (or frontal) elongate cuneiform, truncate anteriorly, extensively in contact with fronto-nasals. Fronto-parietals and parietals moderate; interparietal cuneiform acute, angled anteriorly. Two crescentic postparietals on each side. Four supraoculars. All superior head plates longitudinally rugose. Six superior labials, four under middle of orbit. Temporal region covered with large keeled scales, the tympanic meatus appearing as a small slit behind the free border of one of the posterior. Thirty rows of scales round the body, the dorsal and ventral in longitudinal rows, the lateral in oblique series which are directed upward and backward; they are uncarinate, the dorsal tricarinate, the keels very strong. Four large marginal preaurals. Three large infralabials on each side, beside mental and symphyseal, all in contact with inferior labials; of the latter there are six, the anterior small. Digits unequal. Hinder extremity reaching the elbow; the scales of its external surfaces strongly keeled, as are those of the fore limb; tail (reproduced) covered with strongly keeled scales which form on the upper surface four strong continuous ridges. Length from muzzle to axilla, 9.5 lin.; from axilla to vent 1 in. 2 l.

Above dark rusty, the head and a broad interscapular cross-band, also a median dorsal series of spots, and five or six rather large dorso-lateral spots, chestnut. Beneath and upper lip, rusty yellow.

Hab.—Western Africa, Museum Smithsonian, (No. 5996.)

This species is not to be considered a *Euprepis*, on account of the squamous inferior eyelid: it is quite different from the *Tiliqua rufescens* in the much stronger carination, the more compressed head, minute auricular opening, and different arrangement of head-plates.

This species and the preceding, as well as several others previously described in these Proceedings, must be added to the catalogues of West African rep-

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tiles, recently published by Drs. Gray and Duméril. Of these may be mentioned the crocodile *Osteolaemus tetraspis*, the turtle *Aspidonectes aspilus*, the tree-frog *Hyperolius fulvivittatus* and the serpent *Dasypeltis carinata* (*Dipsas carinata* Hallow). M. Duméril has united many of the supposed species which have been described as distinct; he has, however, not noticed Dr. Günther's identification of Hallowell's *Heteronotus triangularis* with his *Graya silurophaga*. As both the names for this genus have been previously employed, I have called it *Glaniolestes* in the "Hand-book to the Museum, Philadelphia Academy."

On the Classification and Synonymy of the recent species of PHOLADIDÆ.

BY GEORGE W. TRYON, JR.

In the year 1851, Dr. John Edward Gray proposed a very excellent arrangement of the genera of shells included by earlier conchologists in PHOLAS and TEREDO.* This arrangement has received the approval of most of the subsequent authors, who have treated on the subject, including Fischer, (*Journ. Conchyl.*, 2d ser., iii. iv.), H. and A. Adams, (*Genera of Recent Mollusca*), and Chenu, (*Manuel*, tome 2.)

S. P. Woodward, however, in his admirable *Treatise on Conchology*, part second, makes the following disposition of the *Pholades*:

Genus PHOLAS (including DACTYLINA, BARNEA, TALONA, etc.

"The differences in the dorsal shields are only of specific value."

Genus PHOLADIDEA, subgenera MARTESIA, JOUANNETIA, PARAPHOLAS.

Genus XYLOPHAGA.

Mr. P. P. Carpenter, in his various works on the West Coast Mollusca, follows Woodward's arrangement.

The only other modern classification of the family with which I am acquainted, is that contained in Swainson's *Malacology*, which is as follows:

Order DITHYRA.

Tribe MACROTRACHIÆ.

Family PHOLIDÆ.

Genera ASPERGILLUM, CLAVAGELLA, FISTULANA, GASTROCHÆNA, PHOLADOMYA, PHOLAS, PHOLIDÆA, MARTESIA, XYLOPHAGA, TEREDO, TEREDINA.

I am much inclined to think that more than merely specific value should be attached to the number, form and position of the accessory valves, and I have therefore adhered in the main to Dr. Gray's arrangement.

The *Pholades* are monographed by Sowerby, *Thes. Conch.*, ii. 1849. Chenu, *Ill. Conchyl.*; and Hanley, *Desc. Cat.*, besides which, scattered descriptions are contained in the works of numerous ancient and modern authors.

For very full and satisfactory anatomical descriptions of the animals of PHOLADIDÆ, see

Poli. *Testacea utriusque Siciliæ*.

Deshayes. *Exploration Scientifique de l'Algérie. Mollusques*.

Fischer. *Journal de Conch.* 2d ser., vols. iii. and iv.

The *Pholades* inhabit all parts of the world, and many of the species have a geographical range much surpassing that of the generality of bivalve mollusca; and the supporters of the theory of the specific distinctness of all

* An Attempt to Arrange the Species of PHOLADIDÆ into Natural Groups, by J. E. Gray, *Ann. and Mag. Nat. Hist.*, 2d ser., viii. p. 380, 1851.